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**PRELIMINARY
SOIL AND GROUNDWATER ASSESSMENT
OF CANTON DROP FORGE, INC.
4575 SOUTHWAY STREET, SW
CANTON, OHIO**

February, 1993

**Prepared for:
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- A. Location Map (1)
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Exhibits:

- A. R & R International, Inc. - Soil & Groundwater Assessment
- B. Environmental Risk Information and Imaging Services - Database

I. INTRODUCTION

Hammontree & Associates, Limited has been retained as a Consultant by Frederick Zollinger, Attorney at Law, to conduct a Phase II environmental assessment of the soil and groundwater on the 30 acre parcel located on the north side of Southway Street, S.W., Canton, Ohio. The purpose of this assessment was to determine the levels of contaminants, if any, on the property at locations at or near the most likely sources of contamination. Of special interest were the industrial lagoons, oily waste, and the area north of Lagoon #2. Wetlands, asbestos, vapor wastes, and other environmental compliance issues were not a part of this study.

II. EXECUTIVE SUMMARY

Hammontree & Associates, Limited after review of environmental information including soils and groundwater analysis has determined that certain environmental issues should be summarized. A list of our comments are as follows:

- The purpose of this summary of a Soil and Groundwater Assessment is to evaluate the environmental soundness of the soil and groundwater within the boundary lines of your facility north of Southway Street, SW, Canton, Ohio.
- Eight (8) monitoring wells were advanced on the site to depths up to 50 feet and found to contain insignificant soil or water contamination. Soil samples for B-5, B-6, and B-8 showed high hydrocarbons ranging from 4400 mg/kg to 6800 mg/kg. No groundwater remediation is indicated, because the total petroleum hydrocarbons are low and no related regulated constituents were found such as BETX.
- Very limited quantities of Polychlorinated Biphenyls (PCB's) were found in the soil at Test Hole B-6 @ 0.31 mg/kg. PCB #1260 was also found on the surface near one of the transformer locations, HB-1, at 0.88 mg/kg. The maximum concentration limit goals (MCLG) = zero (40 CFR 141.50).
- A moderate hydrocarbon odor and sheen was found on MW-8. This test well also indicated a small concentration of hydrocarbons at 34 mg/kg in the groundwater. USEPA and OEPA has no established limit at this time.
- Barium (1.9 mg/l) at MW-8 does not exceed the OEPA limit of 2.0 mg/l although 1.0 mg/l has been used. We believe that this material will be remediated along with the hydrocarbons. USEPA Barium limits are referenced below:

40 CFR 141.11: MCL = 1.0 mg/l
40 CFR 141.62: MCL = 2.0 mg/l
40 CFR 141.51: MCLG = 2.0 mg/l
40 CFR 264.94: MCL = 1.0 mg/l

- A water sample from Lagoon #3 was better than current safe drinking water regulations for the metals series, VOC's, and semi-VOC's.

- gas low enough for solid waste*
- The area around B-8 should be remediated. Bio-remediation or disposal at a certified landfill are options that are currently available. Additional tests will be required to verify the most economical process to be used.
 - The material on the bottom and around the embankments of Lagoons 1 and 2 should be remediated. Bio-remediation or disposal at a certified landfill are options. Additional tests will be required to verify the most economical best process to be used.
 - Industrial pretreatment to treat process water is required by Federal Regulations. The closure of Lagoons 1 and 2 will be required as a result if the lagoons are abandoned. The effluent will be discharged to the City of Massillon sanitary sewer system.

III. SCOPE OF SERVICES

Objective

An additional objective of the soil/groundwater Phase II site assessment was to identify, if possible, an impermeable clay/rock layer between the groundwater and any possible contamination. In order to complete this objective and to determine the levels of contamination, if any, the following tasks were performed:

Task 1 - Drilling and Monitoring Well Installation

This work was performed by R & R International (R&R) of Copley, Ohio and coordinated by Hammontree & Associates, Limited (H&A). A total of eight (8) soil borings were advanced utilizing a truck mounted drilling rig at locations shown on the Location Map (see appendix). Soil samples were collected on a continuous basis utilizing a "split-spoon" soil sampling device in accordance with the ASTM D-1586 test method. All drilling and sampling equipment which encounters the soil materials was thoroughly decontaminated using high pressure steam cleaning between each boring location.

The borings were advanced to a depth of approximately seven (7) feet below the first saturated soil interval or rock refusal.

Subsequent to the completion of the drilling operations, monitoring wells were installed in each of the soil borings so that groundwater samples could be recovered for laboratory analysis. Each monitoring well was constructed of two (2) inch (outside diameter) PVC well screen and riser. The monitoring wells were installed as per the recommendations of the U.S. EPA's Technical Enforcement Guidance Document (TEGD). Each monitoring well was supplied with locking covers to prevent un-authorized access. Upon completion, the monitoring wells were properly developed by removing three (3) to five (5) times the calculated well volumes.

All monitoring wells were gauged using an interface probe capable of detecting phase separated hydrocarbons. Groundwater levels were obtained and are accurate to within 0.01 feet. The elevations and locations of all well casings were established by survey thus enabling the preparation of a groundwater surface map showing the local groundwater flow direction.

Soil cuttings and well development water generated during the course of the investigation were staged at the site for subsequent removal and disposal. The scope did not include soil analysis which may be necessary for acceptance of any contaminated soils into an approved sanitary landfill, or any groundwater analysis which may be necessary for acceptance of the development water at a treatment/recycling facility. A cost estimate for the removal and disposal of the soil and groundwater (if necessary) can be prepared at your request.

Task 2 - Soil and Groundwater Sampling

This task was completed by R & R and H & A analyzed sampling requirements for each location. Representative soil materials recovered from each split-spoon sample were promptly placed in laboratory supplied glass jars equipped with Teflon lined lids and tightly sealed. The headspace gas which collects in the sample jar above each soil sample was analyzed using a field calibrated photoionization detector (PID) capable of detecting volatile organic compounds (VOCs). The soil sample field screening was used as an aid in the determination of which of the collected soil samples will be submitted for laboratory analysis. One sample per core drilling was submitted to an outside laboratory service for testing.

Subsequent to monitoring well development activities and after a period of stabilization, groundwater samples were recovered from the installed monitoring wells using a clean teflon bailer. All samples were promptly labeled and placed in an ice-filled cooler for transport to the laboratory. A chain-of-custody form was prepared to document sampling handling from the field to the laboratory. All sampling equipment was properly decontaminated between sampling locations. One water sample per monitoring well was tested by an outside laboratory.

Task 3 - Soil Sample Analysis

H & A coordinated sampling and analyze of all test results. The soil sample from each boring which exhibits the highest concentration of VOCs as determined with the PID was submitted to an independent laboratory for analysis. Soil samples submitted to the laboratory were analyzed for total petroleum hydrocarbons (TPH) - EPA Method 418.1, volatile and semi-volatile organic compounds - Methods SW846-8240 and SW846-8270, polychlorinated biphenyls (PCBs) - Method SW846-8080, the Target Compound List (TCL) of 23 metals - Method SW846-7000 Series, total cyanide - Method SW846-9010, and total recoverable phenolics - Method SW846-9065.

Task 4 - Groundwater Sample Analysis

H & A coordinated sampling and analyze of all test results. Groundwater samples obtained from the monitoring wells were submitted to an independent laboratory for analysis of total petroleum hydrocarbons (TPH) - EPA Method 418.1, volatile and semi-volatile organic compounds - Methods SW846-8240 and SW846-8270, polychlorinated biphenyls (PCBs) - Method SW846-8080, the Target Compound List of 23 metals - Method SW846-7000 Series, total cyanide - Method SW846-9010, and total recoverable phenolics - Method SW846-9065.

A report prepared by R & R detailing the findings of the investigation was prepared upon receipt of the analytical results. (See Exhibit "A") The report describes the methodologies utilized

during the investigation, reports the results of the analytical testing, and provides any recommendations for additional work.

IV. LOCATION:

The property is located in the Northeast and Southeast Quarters of Section 13, Perry Township, Stark County, Ohio. It is also known as 4575 Southway Street, S.W., Canton, Ohio 44706.

V. DESCRIPTION OF THE PROPERTY:

The property is located in an industrial and manufacturing area west southwest of the Stark County Courthouse in downtown Canton about 3 miles away. The plant, built about 1945, currently supplies forged metal parts to various industries, e.g. aircraft, off-road and locomotive. The site includes about 30 acres north of Southway Street, S.W. Most buildings were constructed originally with a die shop being added in the 1950's.

VI. GEOGRAPHIC/GEOLOGICAL

The ground in the area of the facility is about 1070 feet above mean sea level. The ground elevation around the monitoring wells ranges from 1057.2 at B-5 to 1075.5 at B-8. The general high point of the property is just west of the forge shop and generally slopes in all directions from there. The east part of the property generally drains south towards Southway. However, very little storm water flows off the property or to Lagoon 3 due to Lagoons 1 & 2 being the receptor of the majority of the storm water from the buildings and yard drains.

The majority of the storm drainage in this area both on and off the site percolates into the ground with no clear drainage course for surface run-off. From the Stark County Official Highway Map, it appears that drainage south of the railroad drains south to Hurford Run to the Nimishillen Creek. The area north of the railroad probably drains to Sippo Lake.

According to the Stark County Soils survey the soils are defined as "Urban". However, the adjacent soils are Canadice silt loam, Bogart silt loams, Chili gravelly loam, Chili silt loam and Conotton gravelly loam. These soils are generally classified as "deep, nearly level to steep, well-drained and somewhat poorly drained soils that have a loamy subsoil; formed mainly in glacial outwash."

The seasonal groundwater table as identified during this assessment had a high point at MW-3 west of the forge shop. The water table generally slopes to the north.

For further geological and groundwater information refer to Exhibit A.

VII. ENVIRONMENTAL ISSUES

Polychlorinated Biphenyls (PCBs): PCBs are associated with electrical transformers, capacitors, and substations. Main transformers are sometimes maintained by the utility company. Three surface locations were sampled for PCBs adjacent to existing outside transformer pads.

HB-1 indicated a concentration of 0.88 mg/kg of Aroclor #1260 PCBs. Also PCB's were identified at B-6 having a concentration of 0.31 mg/kg. The contamination was at about 1 foot and 5 foot,

respectfully. Under 40 CFR 302.4 the reportable quantity for PCBs is 10 pounds. The actual quantity can be determined after an investigation as to the content, if any, in the electrical transformers.

Frivable Asbestos: Asbestos was not a part of this assessment. It was reported that Canton Drop Forge has an ongoing abatement program for the removal or encapsulating of the affected areas. Asbestos is regulated under 40 CFR Part 61 and 29 CFR 1910.

Underground Storage Tanks: There are two areas which have underground storage tanks. These tanks are located on Figure 4.1, "Site Plan" of the R & R Report marked Exhibit A. The description of the tank areas is described on page 4 of the R & R Report. Underground storage tanks are regulated by "BUSTR" under OAC 1301:7-9. USEPA regulations are found in 40 CFR Part 280. The existing UST's store quench oil and heating oil.

Hazardous Substances: Canton Drop Forge is on the "1991 Master Site List" published by the Division of Emergency and Remedial Response of Ohio EPA. During our soil and groundwater assessment the following contaminants were discovered:

Soil

Volatile and Semi-Volatile Organic Compounds

<u>Name</u>	<u>Location</u>	<u>Concentration</u>	<u>Regulated Limits</u>
Polychlorinated Biphenyls (PCB's)	B-6	0.31 mg/kg	
	HB-1	0.88 mg/kg	
Total Petroleum Hydrocarbons	B-5	4400 mg/kg	
	B-6	5100 mg/kg	
	B-8	6800 mg/kg	
2 - Butanone (Methyl Ethyl Ketone)	B-1	140 ug/kg	{"TC" Limit=20 mg/l
1, 1, 1 - Trichlorethane	B-3	22 ug/kg	
	B-4	11 ug/kg	
	B-6	110 ug/kg	
	B-8	18 ug/kg	
Tetrachlorethane	B-6	51 ug/kg	
	B-7	26 ug/kg	

Name	<u>Water</u>		Regulated Limits
	<u>Location</u>	<u>Concentration</u>	
Total Petroleum Hydrocarbons	MW-8	34 mg/l	No limit set*
Chloromethane	MW-8	21 ug/l	No limit set
Barium	MW-8	1.9 mg/l	2.0 mg/l (40 CFR 141.51)

*Note: Total Petroleum Hydrocarbons are not regulated under the SDWA, however, constituents of hydrocarbons are, i.e., BETX and were not detected.

It should be noted that all samples mentioned in Exhibit A designated by "S" were taken and analyzed by USEPA.

For other metal concentrations in the groundwater and soil samples refer to the R & R Report Tables 5.5 (pages 31 thru 33) and 5.10 (pages 41 thru 43). The metal concentrations in the soil are within normal background levels according to the US Geological Survey Professional Paper 1270 dated 1984 except for arsenic (170 mg/kg in B-7), Chromium (2000 mg/kg in B-6), and nickel (1800 mg/kg in B-6). The lead in MW-2 was retested and showed below the detection limit.

Industrial Waste Treatment: Presently all domestic waste goes to the Massillon Public Treatment Facility. The industrial waste consisting of oil and other contact water presently is treated in three lagoons. The oil and water (including storm water) is separated in Lagoon #1 and the water is pumped to Lagoon #2. Lagoon #2 receives storm water along with other contact water including boiler blow down. Oil and water are separated with the clean water being discharged to Lagoon #3. Lagoon #3 had no visible oil and the metal series test for Drinking Water yielded no metals above the SDWA Limits. There are no visible discharge pipes from any lagoon to the surface waters of Ohio.

Environmental Database: A database to investigate other environmental issues was implemented through Environmental Risk Information and Imaging Services Report (see Exhibit B). A summary of that information follows:

- Canton Drop Forge is on the 1991 Master List for Ohio (D001 - A solid waste exhibits the characteristic of ignitability)
- Canton Drop Forge is in the CERCLA database
- Canton Drop Forge - EPA ID #OHD004465142
- The report indicated a Court Docket #05-86-0111
- Canton Drop Forge reported a petroleum release on 4/2/90

CHECK TO SEE IF THIS IS CANTON

VIII. LIMITATION OF LIABILITY

It is expressly understood that the undersigned has not conducted any detailed engineering studies of the integrity of the facilities or properties. The statements set forth in this assessment are not to be construed as a guarantee or warranty.

IX. STANDARD OF CARE:

The services performed by Hammontree and Associates, Limited for this soil and groundwater Assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by firms similar to Hammontree and Associates, Limited which are currently providing similar services.

Canton Drop Forge recognizes that subsurface conditions or other field conditions may vary from those encountered at locations where samplings, surveys or other observations are made by Hammontree and Associates, Limited.

X. RECOMMENDATIONS:

The following recommendations are a result of the soil and groundwater assessment:

- Remediate the area in and around B-8 located south of Lagoon #3.
- Separate the industrial waste stream from the storm sewer system.
- Provide an industrial pretreatment system to be discharged to the City of Massillon Public Treatment works.
- Remediate Lagoons #1 & 2 according to OEPA and USEPA regulations (40CFR279.12).
- Consider conversion of Lagoons #1 and #2 to retention or detention basins for storm water.
- If Lagoon #3 overflows its banks, the discharge may require an NPDES Permit.
- Remove PCBs from the soil, if required.

XI. CONCLUSION:

Based on the above stated recommendations, we have concluded that proceeding to a remedial action Phase III is warranted. The tasks can be run concurrently or separately depending on your requirements.

PCB Remediation

- Determine PCB concentrations in transformers for regulatory purposes (40 CFR 761). This will effect the level of effort in any remediation.
- Delineation of Remediation area (Depth and Width)
- Prepare corrective action plan
- OEPA approval (negotiations)
- Implementation of plan (bidding, etc)
- Remediation activities
- Closure report to OEPA
- OEPA Approval

Soil Boring #8

- Delineation of Remediation Area
(Depth and Width) (On-site only)
- Characterize Waste (Lab & Pilot Studies)
- Feasibility Study and Treatability Study - Remedial Options
- Corrective Action Plan
- OEPA Approval (negotiations)
- Implementation of Plan (bidding, etc.)
- Drain Lagoon #3 to permit remedial activities near the lagoon not to effect the water in Lagoon #3 or vice versa.
- Remedial Activities
Physical Removal off site, or
Bio-Remediation
- Evaluation and closures report to OEPA
- OEPA approval

Industrial Pretreatment - Phase I

- Feasibility Report (General Plan)
Characterization of Waste (Flow)
Pilot Study
- OEPA Approval (City of Massillon)
- Prepare Plans and Specifications
- OEPA Permit to Install
- Bidding and Construction
- No further action if discharged to Massillon

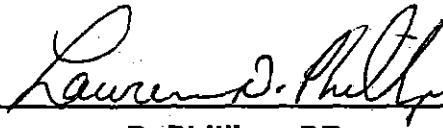
Industrial Pretreatment - Phase II (Lagoon Closure #1 of #2)

- Work plan development
- OEPA negotiation and approval
- Implement work plan - Closure Assessment Report
Delineation of Remediation Area
Assessment of problem
- OEPA negotiation and approval
- Feasibility Study and Treatability Study
Remedial Options
- Corrective Action Plan
- OEPA Approval
- Implementation of Plan (bidding, etc.)
- Drain Lagoons
- Remedial Activities
Physical removal off site, or
Bio-Remediation
- Evaluation and closure report to OEPA
- Groundwater Monitoring and follow-up reports
- OEPA Approval

XII. CERTIFICATION:

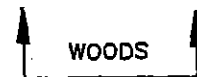
We hereby certify that to the best of our knowledge and belief,...

- the statements of fact contained in this report are true and correct.
- the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and are Hammontree and Associates, Limited's unbiased professional analysis, opinion, and conclusions,
- Hammontree and Associates, Limited's compensation is not contingent on an action or event resulting from the analyses, opinions, and conclusions developed in this report,
- we have made an inspection of the property that is the subject of this report,
- this report, to the best of our knowledge, is forwarded as an accurate representation of the site condition at the time reported.



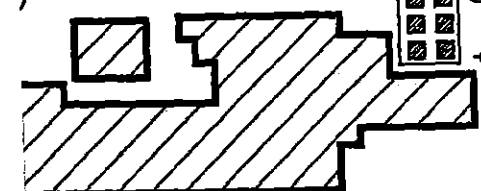
Lawrence D. Phillips, PE.

Partner

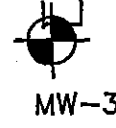
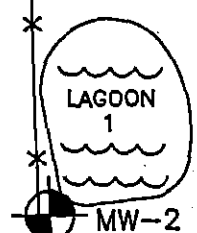


CONRAIL RAILROAD
FENCE

WATER TOWER
MW-4
WATER WELL #2
HB-2



HB-3
FORMER 1,600 gal. GASOLINE UST










BEAVER CONSTRUCTION

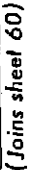
NEVADA AVE.

SOEHNLEN AVE.

FORM SERV STATION

LEGEND

-  MONITORING WELL LOCATION
MW-2
-  WATER WELL LOCATION
-  BORING LOCATION
B-10
-  HAND BORING LOCATION
HB-2
-  UNDERGROUND STORAGE TANK FARM
-  TRANSFORMER
-  FENCE





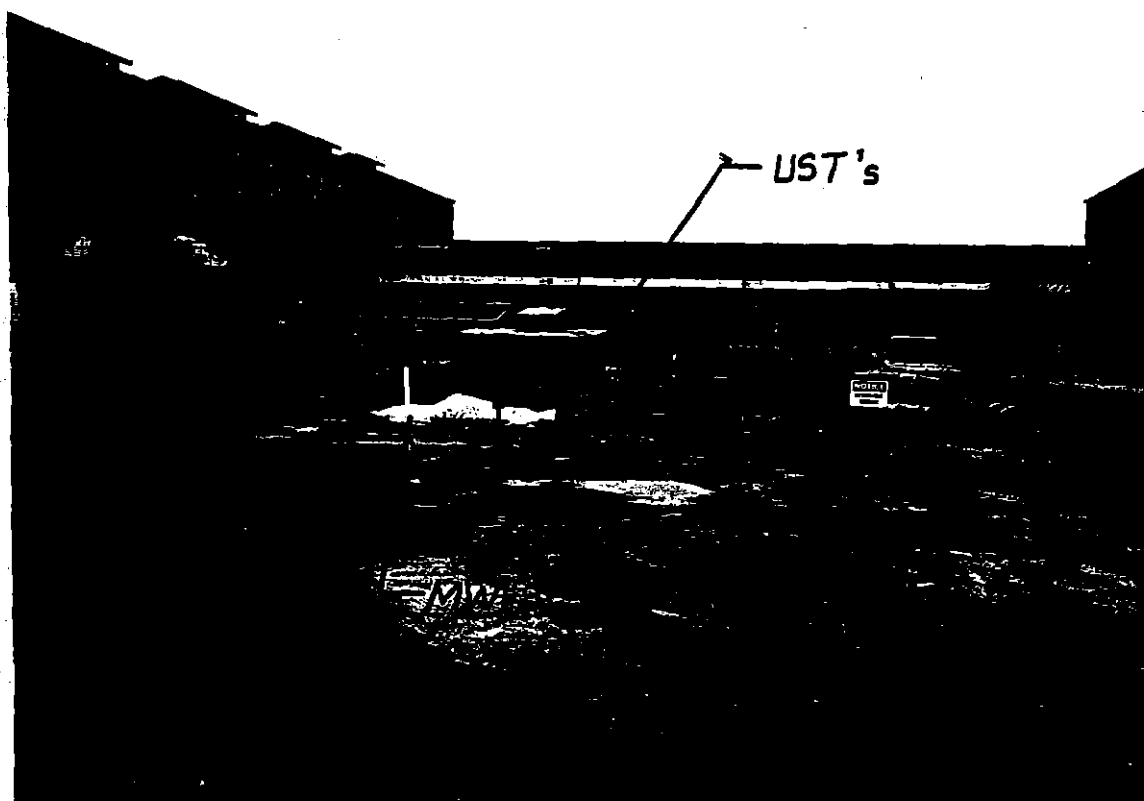
MW-1 LOOKING NORTH



B-2 LOOKING SOUTH



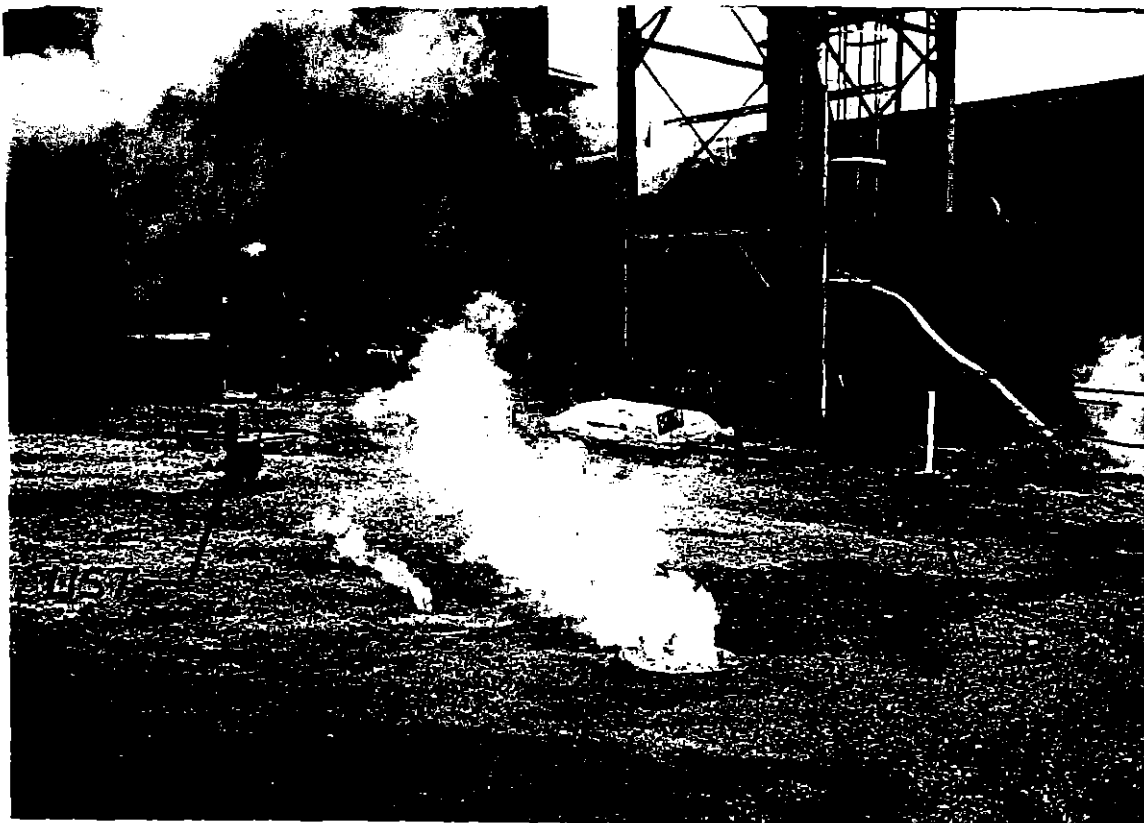
MW-2 LOOKING WEST



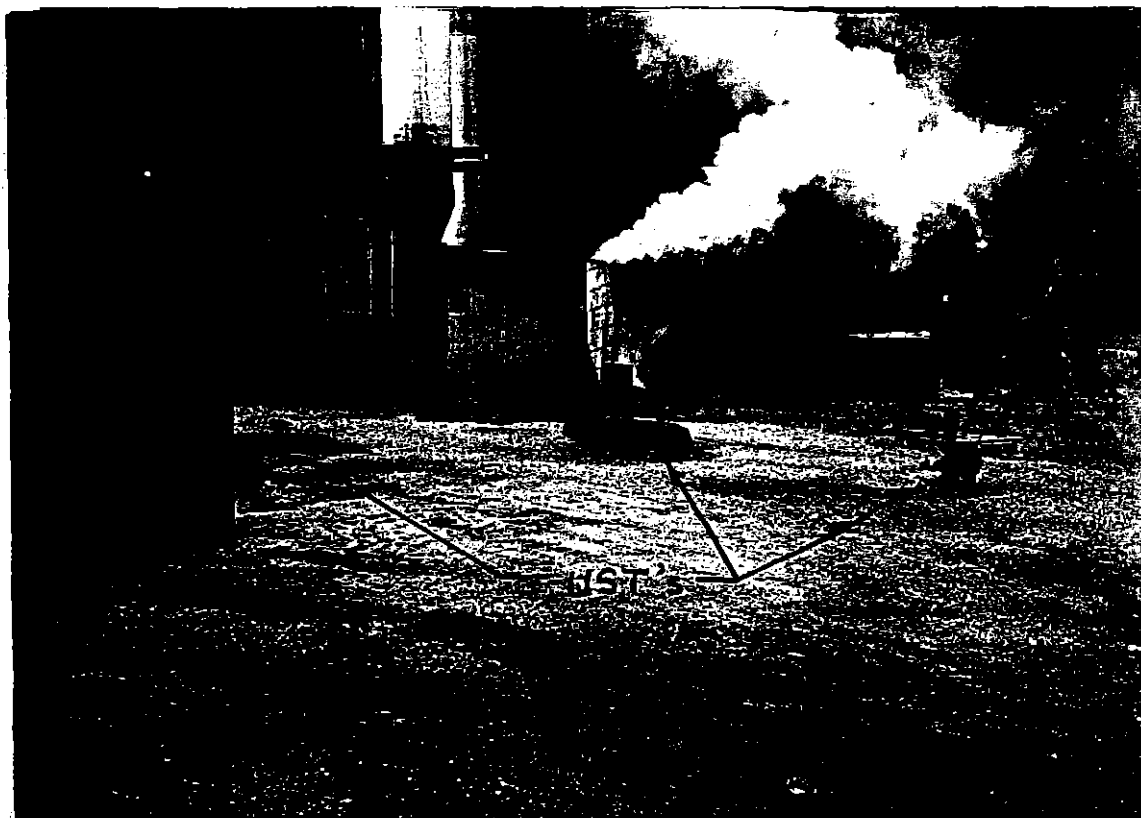
MW-3 LOOKING NORTH

D-2

CDF006481



MW-4 LOOKING NORTHWEST



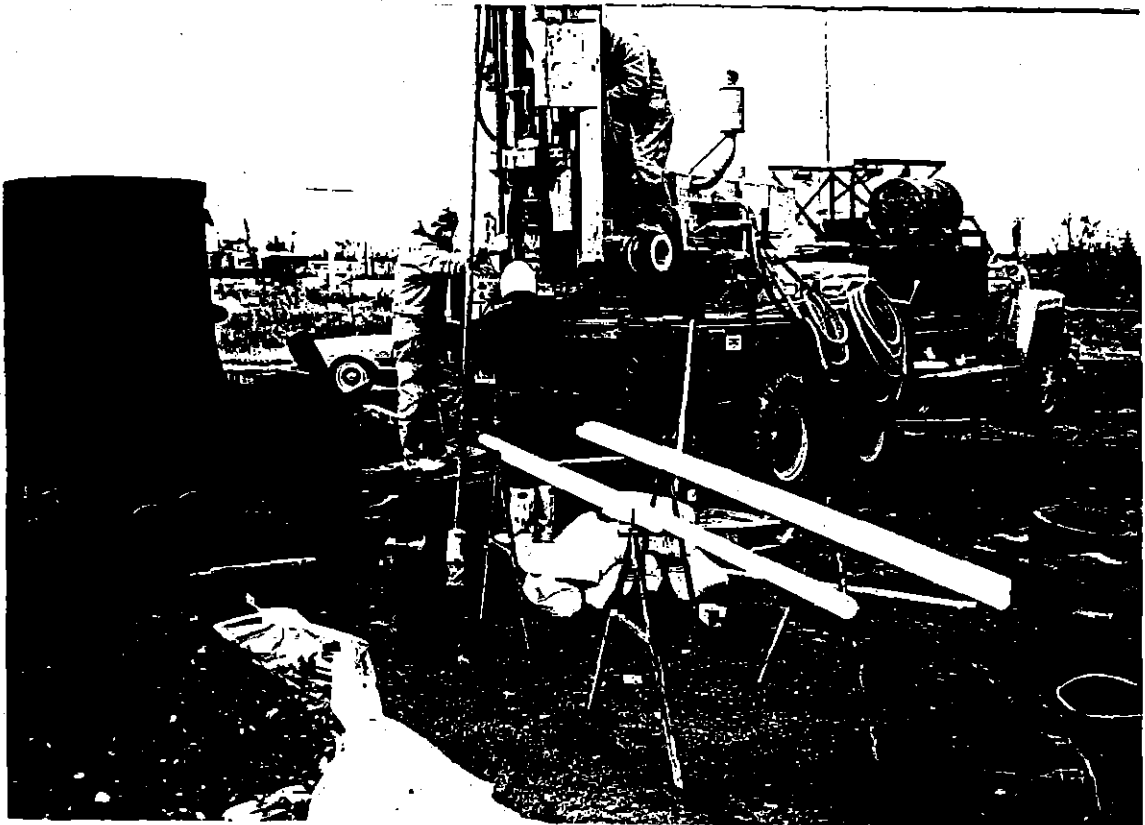
UST's SOUTH OF MW-4



B-5 LOOKING SOUTH



B-5 LOOKING EAST



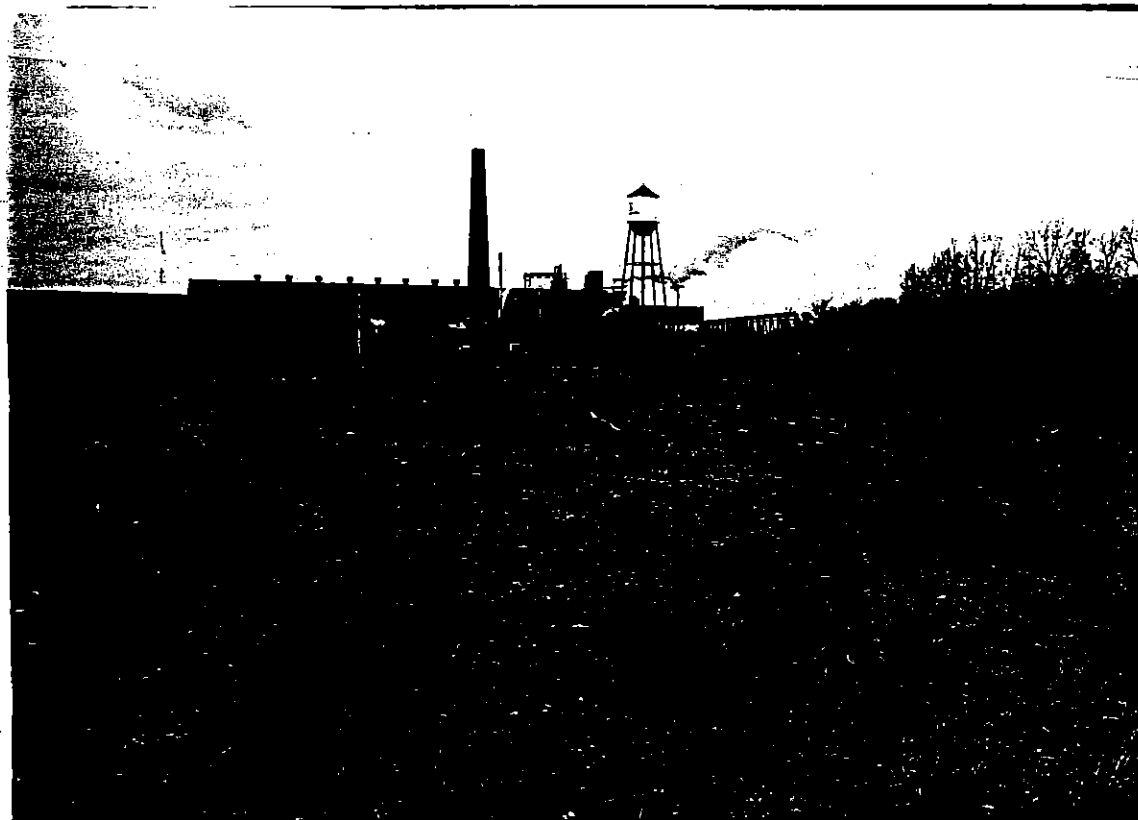
B-6 LOOKING EAST



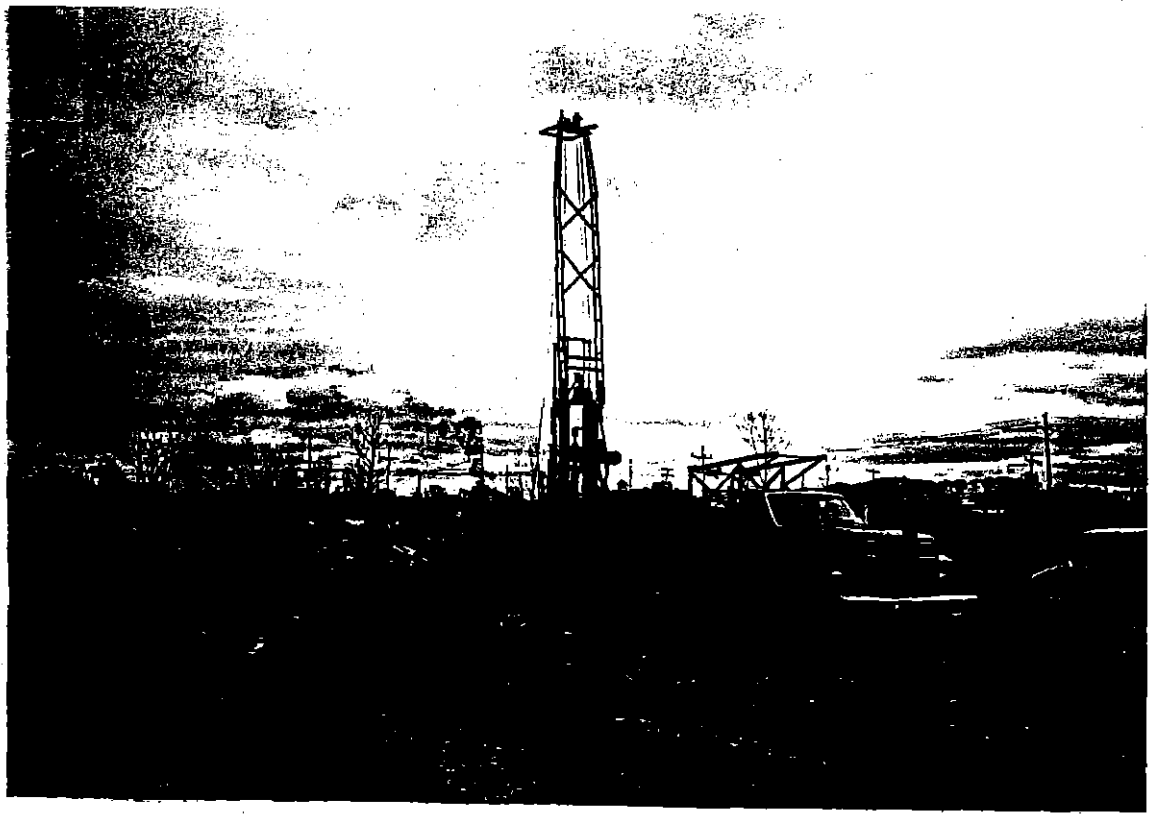
B-6 TAKING SOIL SAMPLE



B-6 LOOKING NORTH



B-7 LOOKING WEST



MW-7
LOOKING EAST



MW-8
LOOKING
SOUTHEAST